

REMARKS

Claim Rejections

Claims 1-16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Gabriel (U.S. 6,361,706) in view of Stearns et al. (U.S. 6,277,347).

Drawings

It is noted that no Patent Drawing Review (Form PTO-948) was received with the outstanding Office Action. Thus, Applicant must assume that the drawings are acceptable as filed.

Claim Amendments

By this Amendment, Applicant has amended claims 1, 7 and 13 of this application. It is believed that the amended claims specifically set forth each element of Applicant's invention in full compliance with 35 U.S.C. § 112, and define subject matter that is patentably distinguishable over the cited prior art, taken individually or in combination.

Regarding the water vapor, Gabriel teaches a total of two embodiments, the first and second one being shown in FIG. 1 and FIG. 2, respectively. In the first embodiment, by heating the water that is poured into an enclosed tank, the thus-created water vapor is taken off the top of the tank and delivered to a plasma abatement device (106), col. 5, lines 18-23. In the second embodiment, water vapor is added directly to a plasma processing chamber (102), col. 5, lines 42-44.

In paragraph 0018, the present invention discloses a tubing arrangement including a steam conduit (202), which encircles a plasma reactor (210) and extends upwards to reach the steam inlet (201) (See FIG. 2). In paragraph 0019, the present invention states:

the thermal energy generated by the reactions occurring in the plasma reactor converts the liquid water into steam by means of heat-exchange. . . . Such measures reduce the cost as an additional heater is not required, while reducing the products temperature at the same time thereby improving the extent of

exhaust products dissolved in the water to facilitate later processes.

While introducing water vapor in either embodiment, Gabriel fails to utilize the tubing arrangement of a steam conduit that could provide the above benefits. Nor does Gabriel mention any cooling effect associated with either embodiment. Without the steam conduit configuration of the present invention, the cooling effect in Gabriel would be infinitesimal.

To remove the large amount of H₂ produced, the present invention further provides an additional chamber (280) into which external air is introduced through a control valve (281), to allow reaction of oxygen in the air with H₂, which may cause explosions in later processes (See paragraph 0020). Gabriel, however, does not provide such disclosure and, consequently, fails to react and remove H₂ as does the present invention.

Gabriel does not teach creating steam in a steam conduit encircling a reacting chamber utilizing heat from the reacting chamber; nor does Gabriel teach the steam being supplied by the steam conduit encircling the reacting chamber.

Stearns et al. discloses an abatement system that, by introducing ozone and the application of energy, causes a reaction in and between the effluent gases and the ozone so as to render the compound inert (See abstract).

Stearns et al. states, col. 7, lines 38-42:

Depending upon the configuration, additional abatement operations may be performed to further reduce levels of undesirable compounds within the exhaust gases, using methods such as water scrubbing, catalysis and filtering.

Even though Stearns et al. identifies infinite possibilities for additional abatement operations, Stearns et al. does not teach the specific processes of the present invention including the integration of a water injection assembly 220, a water tank 230, a pump 240 and a wet washing tower 250 (see paragraph 0021 and FIG. 2):

In Stearns et al., air can be added as a combustion fuel (col. 6, lines 53-55) because the combustion occurs in the combustion chamber (See abstract). Where as the present invention subjects the exhaust to instantaneous pyrolysis, atomization

or ionization in the reacting chamber (213) thereby breaking down and destructing the chemical bonds of the PFCs (See paragraph 0020). Its operating temperature is about 10,000 °C produced by the plasma torch (200) (See paragraph 0020), which is a different process than the process disclosed in Stearns et al.

Moreover, the function of Stearns et al. is to abate PFCs by introducing ozone and air (See abstract), whereas the function of the present invention is to remove the fine solid particles, such as silicon powders, carried by the exhaust products of combusted PFCs (See paragraph 0021, lines 16-18) .

Thus, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to use air in the present invention as air is added in the present invention to provide oxygen as a reacting compound but not a combustion fuel.

Stearns et al. does not teach creating steam in a steam conduit encircling a reacting chamber utilizing heat from the reacting chamber; the steam being supplied by the steam conduit encircling the reacting chamber; nor does Stearns et al. teach dissolving HF in the exhaust products in a water tank set and removing fine solid molecules in the exhaust products and precipitated in the water tank set.

Even if the teachings of Gabriel and Stearns et al. were combined, as suggested by the Examiner, the resultant combination does not suggest: creating steam in a steam conduit encircling a reacting chamber utilizing heat from the reacting chamber; nor does the combination suggest the steam being supplied by the steam conduit encircling the reacting chamber.

It is a basic principle of U.S. patent law that it is improper to arbitrarily pick and choose prior art patents and combine selected portions of the selected patents on the basis of Applicant's disclosure to create a hypothetical combination which allegedly renders a claim obvious, unless there is some direction in the selected prior art patents to combine the selected teachings in a manner so as to negate the patentability of the claimed subject matter. This principle was enunciated over 40 years ago by the Court of Customs and Patent Appeals in In re Rothermel and Waddell, 125 USPQ 328 (CCPA 1960) wherein the court stated, at page 331:

The examiner and the board in rejecting the
appealed claims did so by what appears to us to be a

piecemeal reconstruction of the prior art patents in the light of appellants' disclosure. ... It is easy now to attribute to this prior art the knowledge which was first made available by appellants and then to assume that it would have been obvious to one having the ordinary skill in the art to make these suggested reconstructions. While such a reconstruction of the art may be an alluring way to rationalize a rejection of the claims, it is not the type of rejection which the statute authorizes.

The same conclusion was later reached by the Court of Appeals for the Federal Circuit in Orthopedic Equipment Company Inc. v. United States, 217 USPQ 193 (Fed.Cir. 1983). In that decision, the court stated, at page 199:

As has been previously explained, the available art shows each of the elements of the claims in suit. Armed with this information, would it then be non-obvious to this person of ordinary skill in the art to coordinate these elements in the same manner as the claims in suit? The difficulty which attaches to all honest attempts to answer this question can be attributed to the strong temptation to rely on hindsight while undertaking this evaluation. It is wrong to use the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit. Monday morning quarterbacking is quite improper when resolving the question of non-obviousness in a court of law.

In In re Geiger, 2 USPQ2d, 1276 (Fed.Cir. 1987) the court stated, at page 1278:

We agree with appellant that the PTO has failed to establish a *prima facie* case of obviousness. Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching suggestion or incentive supporting the combination.

Applicant submits that there is not the slightest suggestion in either Gabriel or Stearns et al. that their respective teachings may be combined as suggested by

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the Examiner. Case law is clear that, absent any such teaching or suggestion in the prior art, such a combination cannot be made under 35 U.S.C. § 103.

Neither Gabriel nor Stearns et al. disclose, or suggest a modification of their specifically disclosed structures that would lead one having ordinary skill in the art to arrive at Applicant's claimed structure. Applicant hereby respectfully submits that no combination of the cited prior art renders obvious Applicant's new claims.

Summary

In view of the foregoing amendments and remarks, Applicant submits that this application is now in condition for allowance and such action is respectfully requested. Should any points remain in issue, which the Examiner feels could best be resolved by either a personal or a telephone interview, it is urged that Applicant's local attorney be contacted at the exchange listed below.

Respectfully submitted,

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